



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,761	02/03/2004	Edward James Cargill	58029-13C	8914
7590 12/19/2005 Terrence N. Kuharchuk Scotia Place, Tower Two 1501 - 10060 Jasper Avenue Edmonton, AB T5J 3R8 CANADA			EXAMINER PICKARD, ALISON K	
			ART UNIT 3673	PAPER NUMBER

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Interview Summary	Application No.	Applicant(s)	
	10/769,761	CARGILL, EDWARD JAMES	
	Examiner	Art Unit	
	Alison K. Pickard	3673	

All participants (applicant, applicant's representative, PTO personnel):

(1) Alison Pickard. (3)_____.

(2) Terry Kuharchuk. (4)_____.

Date of Interview: 14 December 2005.

Type: a) ☒ Telephonic b) ☐ Video Conference
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: _____.

Claim(s) discussed: all of record (see draft amendments attached).

Identification of prior art discussed: Weeks, Lemelson, Endicott.

Agreement with respect to the claims f) ☐ was reached. g) ☒ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.



Examiner's signature, if required

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant presented proposed amendments to overcome the rejections of Weeks and Endicott in view of Lemelson. It appears the added limitations would overcome the rejection based on Weeks. However, an agreement could not be reached with regard to Lemelson. Applicant will consider further defining the engagement surfaces to overcome Lemelson (i.e. to define over the projecting lip 22' of Lemelson). Any changes will be subject to further consideration and/or search..

for interview purposes
only.

Application No. 10/769,761
Proposed Amended Claims
December 14, 2005

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. (Amended) In a seal assembly for sealing with a rotatable component so that the
5 seal assembly defines a first side of the seal assembly and a second side of the seal
assembly and so that the first side is sealed from the second side by the seal assembly, the
component defining a longitudinal axis of rotation and extending through the seal
assembly so that the longitudinal axis of rotation of the component extends between the
first side and the second side of the seal assembly ~~extending within the seal assembly and~~
10 ~~defining a longitudinal axis of rotation~~, the seal assembly comprising a seal element
retained within by a seal housing, wherein one of the seal element and the seal housing is
comprised of a compressible material, wherein the seal element is comprised of a seal
engagement surface, and wherein the seal housing is comprised of a housing engagement
surface for engaging the seal engagement surface, the improvement comprising:
15
- (a) one of the seal engagement surface and the housing engagement surface
being comprised of the compressible material; ~~and~~
 - (b) the other of the seal engagement surface and the housing engagement
20 surface being oriented in a plane normal to the longitudinal axis of rotation
of the component ~~extending through the seal assembly~~ and defining a
depression for providing an isolated gap between the seal engagement
surface and the housing engagement surface for receiving the compressible
material to restrain movement of the seal element relative to the seal
25 housing; and
 - (c) the seal element being exposed to a fluid pressure on the second side of the
seal assembly such that an engagement force is exerted between the seal
engagement surface and the housing engagement surface in order to
30 maintain the seal element in position relative to the seal housing.

2. **(Original)** The improvement as claimed in claim 1 wherein the depression is comprised of at least one circumferential groove.

5 3. **(Original)** The improvement as claimed in claim 1 wherein the depression is comprised of at least one circumferential groove extending for a length equal to the circumference of the other of the seal engagement surface and the housing engagement surface.

10 4. **(Original)** The improvement as claimed in claim 1 wherein the depression is comprised of a plurality of substantially parallel circumferential grooves.

5. **(Original)** The improvement as claimed in claim 1 wherein the depression is comprised of a plurality of substantially parallel and concentric circumferential grooves.

15

6. **(Original)** The improvement as claimed in claim 1 wherein the depression is comprised of a plurality of substantially parallel and concentric circumferential grooves, wherein each of the grooves extends for a length equal to the circumference of the other of the seal engagement surface and the housing engagement surface.

20

7. **(Original)** The improvement as claimed in claim 1, further comprising a preloading mechanism for urging the seal engagement surface and the housing engagement surface into engagement with each other.

25 8. **(Original)** The improvement as claimed in claim 7 wherein the preloading mechanism is comprised of at least one spring which is retained by the seal housing.

9. **(Original)** The improvement as claimed in claim 1 wherein the seal element is comprised of a compressible material and wherein the depression is defined by the housing engagement surface.

30

10. **(Original)** The improvement as claimed in claim 9 wherein the seal element is comprised of a resilient compressible material.

5 11. **(Original)** The improvement as claimed in claim 9 wherein the depression is comprised of at least one circumferential groove.

12. **(Original)** The improvement as claimed in claim 9 wherein the depression is comprised of at least one circumferential groove extending for a length equal to the
10 circumference of the housing engagement surface.

13. **(Original)** The improvement as claimed in claim 9 wherein the depression is comprised of a plurality of substantially parallel circumferential grooves.

15 14. **(Original)** The improvement as claimed in claim 9 wherein the depression is comprised of a plurality of substantially parallel and concentric circumferential grooves.

15. **(Original)** The improvement as claimed in claim 9 wherein the depression is comprised of a plurality of substantially parallel and concentric circumferential grooves,
20 wherein each of the grooves extends for a length equal to the circumference of the housing engagement surface.

16. **(Original)** The improvement as claimed in claim 9, further comprising a preloading mechanism for urging the seal engagement surface and the housing engagement surface
25 into engagement with each other.

17. **(Original)** The improvement as claimed in claim 16 wherein the preloading mechanism is comprised of at least one spring which is retained by the seal housing.

18. (New) The improvement as claimed in claim 1 wherein the fluid pressure on the second side of the seal assembly is provided by a lubricating fluid.

5 19. (New) The improvement as claimed in claim 18 wherein the seal assembly is incorporated into a drilling apparatus so that the seal assembly isolates the lubricating fluid on the second side of the seal assembly from a drilling fluid on the first side of the seal assembly.

10 20. (New) The improvement as claimed in claim 19 wherein the drilling apparatus provides for pressure balancing so that a borehole pressure on the first side of the seal assembly is transmitted to the second side of the seal assembly and so that the fluid pressure is comprised of the borehole pressure.